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ABSTRACT

Generalized expectancies for problem solving referred to by Rotter appear to have significant relevance to the field of psychotherapy, particularly four specific expectancies of interest: (1) looking for alternatives; (2) understanding the motives of others; (3) long-term planning; and (4) discriminating differences in psychological situations. A new Likert-type scale, developed and revised on the basis of item analysis of internal consistency and an analysis of factors measuring generalized expectancies for problem solving, was administered to 235 subjects over a three-month period. The test items were written as face-valid measures, and randomly ordered and checked so that items from each expectancy were not grouped together. Items were also written to contain an equal number of positive and negative statements. Findings indicated test-retest reliability to be satisfactory. (Author)

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Expectancy For Problem Solving

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Expectancy for Problem Solving

The problems of psychotherapy or counseling "may be viewed as problems in how to effect changes in behavior through the interaction of one person with another" (Rotter, 1972, p.554). Rotter (1954, 1972, 1978) has written prolifically about the implications of a social learning theory for the practice of psychotherapy. He characterizes social learning theory as an expectancy learning theory utilizing an empirical law of effect. The basic formula (Rotter, 1954) for the prediction of goal directed behavior is as follows:

$$BP_{x_1 s_1, R_a} = f\ (E_{x_1 R_a, s_1}\ \&\ RV_{a, s_1})$$

which reads, "the potential for behavior x to occur in situation 1 in relation to reinforcement a is a function of the expectancy of the occurrence of reinforcement a in situation 1." (Rotter 1972, p. 557-8). This formula, being somewhat limited due to its situation specificity, can also be written in a more generalized manner so as to be applicable in a variety of clinical applications. Rotter writes of this in great detail (Rotter, 1954, 1966, 1972).

In social learning theory the value of reinforcement in a given situation is hypothesized to be a function of the expectancy that the reinforcement will lead to subsequent reinforcements, and the value of these subsequent reinforcements. In therapy the problem in changing minimal goals, or in changing the value of any goal or set of goals, is frequently one of changing expectancies for subsequent reinforcement. Two implications for therapy emerge here: (1) understanding one's problem from another viewpoint may help the client to consider altering his/her goals and/or behaviors, and (2) clients may be helped to consider both the present and long-term consequences of their goals and behaviors.

The concept of maladjustment in social learning theory

> involves an interaction between the individual and his or her environment. It is not considered as a disease or an

> internal struggle within the individual, but rather as a failure of the individual to obtain adequate satisfactions from the psychological environment. It follows that in applying social learning theory to the problems of psychotherapy considerable stress is placed on the development of skills of social problem solving and, consequently, on expectancies that particular kinds of behaviors will lead to satisfaction or to problem solution. (Rotter, 1978, p.2)

In his 1978 article Rotter describes six generalized expectancies for problem solving in the therapeutic setting: (1) The notion of internal versus external control or the belief that reinforcement is contingent upon one's own behavior or characteristics versus the notion that reinforcement is contingent upon chance, fate, or powerful others is the most wellknown and highly researched expectancy (Rotter, 1966). (2) The next is the expectancy that looking for alternative solutions to problems will many times result in more satisfying problem solution. Rotter writes, "Some alternatives may be worse; but some alternatives may be better. An individual can learn to expect, that looking for alternatives will, at least, in many cases result in more satisfactory solutions to what seemed to be insoluble problems (1978, p.5)." (3) A third is the generalized expectancy that people cannot be believed or trusted to fulfill promises (Rotter, 1971). This lack of interpersonal trust stands in the way of an adequate social, sexual, and occupational adjustment and becomes a barrier to effective psychotherapy. (4) A fourth expectancy refers to the degree to which a person believes that an understanding of other's unexpressed, as well as expressed motives will increase the probability that one's

own behavio. can be more effective in interpersonal relationships. The supposition is that increased effectiveness in interpersonal relationships will lead to more satisfactory problem solving. (5) Another problem solving expectancy refers to the degree to which a person believes that a thinking through of long-term consequences of present behaviors will lead to better choices for the present. (6) The sixth mentioned expectancy refers to the belief that many negative reinforcements can be avoided by better discrimination of situations previously regarded as the same, i.e. better discrimination of situations will result in more appropriate situational behavior and thus be more rewarding.

Therapy can be seen as a learning situation in which the client is helped to make changes in his/her observable behavior and thinking. The client's concerns are often seen from a problem solving point of view. This focus may result in the changing of the client's expectancies such as looking for alternative problem solutions, thinking through the consequences of behavior, looking for differences or discriminations in life situations, attempting to understand the needs and attitudes of others, and recognizing that one can exercise some control over one's fate by one's own efforts. In summary, the implications of social learning theory are that therapy should be viewed as a social interaction. Clients may be helped by the therapist to achieve more satisfying and constructive interrelationships with their social environment. Laws and principles governing behavior in interpersonal learning situations apply to the therapy situation as well. Thus, "the therapist is an active partner who utilizes learning principles, applied to a particular individual in a particular set of circumstances, to help that person achieve a better way of dealing with the problems of life (Rotter, 1972, p. 573)."

Scales have been developed to measure two of the six expectancies, an individual's generalized sense of an internal locus of control versus an external locus of control (Rotter, 1966) and the level of interpersonal trust of an individual (Rotter, 1967). Little or no published research has been done on the other four expectancies, and no scales have been developed to measure these expectancies.

The objective of this paper is to present a scale which has been developed and researched with the purpose of measuring four generalized expectancies, or factors, related theoretically to effective problem solving. The four expectancies which the scale attempts to measure are (1) generation of alternatives, (2) understanding the motives of others, (3) long-term planning, and (4) discrimination of differences in psychological situations. An instrument intended to measure such generalized expectancies for problem solving may serve two purposes: (1) as a much needed research tool for use in problem solving and (2) counseling setting which may help to identify clients who need help in developing more positive expectancies during therapy.

Construction of the Expectancy for Problem Solving Inventory

The first step in the construction of the scale was the development of a 50-item inventory using a six-point Likert-type scale, with the response range from strongly agree to strongly disagree. This inventory was administered to a total of 235 subjects over a three-month period. Subjects, who voluntarily agreed to respond to the inventory, were students enrolled in classes in the Department of Educational Psychology at the University of Nebraska at Lincoln. Approximately 200 or them were undergraduates; the remaining were graduate students. Items were written with the intent of corresponding to the four generalized

expectancies referred to by Rotter (1978):

(1) generation of alternative problem solutions and definitions (22 items),

(2) understanding the motives of others (10 items)

(3) long-term planning (10 items), and

(4) discriminating the psychological situation (8 items).

These items were written as face-valid measures, randomly-ordered and checked so that items from each expectancy were not grouped together. In addition items were written so as to contain an equal number of positive and negative statements.

On the basis of an item analysis 45 items were selected using the following criteria: (1) fairly wide distribution of response alternatives, (2) an item part correlation greater than .30, and (3) an item-total correlation greater than .30.

To empirically test the existance of the postulated subscales, a principal components factor analysis with varimax rotation was performed on the revised inventory using the Statistical Package for the Social Sciences (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1970). Twelve factors appeared with eigen values greater than 1.0. However, only two factors accounted for more than 5% of the variance. The principal components analysis with a varimax rotation was rerun requesting two factors. Factor 1 accounted for 87.4% of the variance and factor 2 for 12.6% of the variance. Results using a 0.4 factor loading as minimum criteria led this author to the conclusion that no meaningful factor structure exists.

Nineteen items loaded on factor 1. Of these, sixteen were negatively worded items which had a positive loading greater than 0.4, and three were positively worded items which had a negative loading greater than 0.4.

Seventeen items loaded on factor two. Of these, thirteen were positively worded items with positive loadings greater than 0.4 and four were negatively worded items with negative loadings greater than 0.4. Nine items intended to measure generation of alternatives loaded on factor 1 whereas five loaded on factor 2. Of those intended to measure the expectancy for understanding the motives of other two items loaded on factor one and seven loaded on factor 2 (one overlapped). On long term planning six items fell to factor 1 and three to factor 2 (one overlapped). In the items measuring an expectancy of situation discrimination two loaded on factor 1 and two on factor 2. Eleven items did not meet the criteria of greater than 1.41 and therefore did not load on either factor. The results of the principal components factor analysis with varimax rotation seem to yield a non-meaningful factor structure, thus a unifactor structure may be assumed.

At this point, the scale was again revised to eliminate redundancies in items based on an assumed unifactor structure. A test-retest administration was performed with approximately two hundred volunteer undergraduate educational psychology students who received class credit for their participation.

A Problem Solving Inventory (PSI) (Heppner & Petersen, 1977) was administered simultaneously at the first test session with the Expectancy for Problem Solving Inventory (EPSI). One month later, at the retest session the Internal-External Locus of Control Scale (IES) (Rotter, 1966) and the Scale for the Measurement of Interpersonal Trust (ITS) (Rotter, 1967) were each administered to approximately half of the students taking the EPSI. The Problem Solving Inventory, the Internal-External Locus of Control Scale and the Scale for the Measurement of Interpersonal Trust were included as an attempt at establishing the validity of the EPSI. No further studies have been done at the time of this writing.

Test Characteristics

Internal Consistancy and Test-Retest Reliability

Table 1 provides means, standard deviations and n's for each instrument administered during the test and retest sessions.

Insert Table 1 about here

Alpha coefficients were computed on these 45 items in the first scale revision which yielded the following estimates of internal reliability: total inventory (.93), generation of alternatives (.83), understanding the motives of others (.79), long-term planning (.85), and situation discrimination (.58). The alpha coefficients indicated that subjects' responses to the total inventory and each of the four subscales were internally consistent.

Test-retest reliability was computed using a Pearson Product - Moment Correlation on 138 subjects who completed the EPSI at both test sessions ($r = 0.576$, $p<.001$). A mortality of 23 subjects occurred partially due to incomplete or incorrectly marked answer sheets, and partially due to subjects who failed to take the EPSI at one of the two test administrations.

Validity

It was decided to test the validity of the EPSI against scores on the IES, the ITS and the PSI. Table 2 reports the results of these correlations. The

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Insert Table 2 about here

PSI was also correlated with the IES & ITS. No significant correlation exists between the EPSI and either the IES or ITS. Likewise, no significant correlation

exists between the PSI and either the IES or ITS. A Significant Pearson Product-Moment correlation between the EPSI and the PSI of .4514 ($p = < .001$) does exist.

Explanation of such results neither confirms nor denies the validity of the EPSI. Lack of correlation with the IES and ITS may indicate that entirely different expectancy constructs are being measured by the items on the EPSI. Significant correlation of the EPSI with the PSI does indicate a relationship between the items written to measure problem solving expectancies on the EPSI and the PSI which attempts to measure one's problem solving efficiency. Had the Marlowe Crowne Scale of Social Desirability been administered, a clearer picture of subject's desire to answer with socially desirable responses could have helped determine the efficacy of responses on the other inventories.

Clearly more work must be done in order to establish sound validity constructs for this instrument.

Summary

Although results of the initial inventory administrations appeared promising based on respectable internal consistency values, further attempts to substantiate reliability and validity for the instrument have proved to be discouraging. It may be possible that too much emphasis was placed on the factor analysis in revising the scale, and perhaps the original subscales could indeed still be useful measures of expectancies for problem solving as originally intended. As a unifactor structure it is possible that the scale would not prove to be particularly useful to clinicians or to researchers.

In any event, if the factor problem could be resolved, the issue of instrument validity must still be attacked. This would probably be most effectively done by attempting to correlate a subject's approaches to solving

personal problems via behavioral observation with scores on the EPSI.

The original idea of using generalized expectancies for problem solving in the therapy setting remains sound, and the objective of searching for a means to measure the strength expectancies such as those suggested by Rotter in 1978 seems worthwhile. However, an inventory such as the one reported in this paper may not prove to be the most useful approach to accomplishing these objectives. Clearly more research needs to be done in this area.

References

Heppner, P. P. & Petersen, C. H. The development, factor analysis, and validation of a problem solving instrument. Unpublished manuscript, University of Nebraska-Lincoln, 1977.

Nie, H. N., Hull, C. H. Jenkins, J. G., Steinbrenner, K., & Bent, D. H. The Statistical Package for the Social Sciences (2nd ed.) New York: McGraw-Hill, Inc., 1975.

Rotter, J. B. A new scale for the measurement of interpersonal trust. Journal of Personality, 1967, 35, 651-665.

Rotter, J. B. Generalized expectancies for internal versus external control of reinforcement. Psychological Monographs, 1966, 80 (1, Whole No. 609).

Rotter, J. B. Generalized expectancies for interpersonal trust. American Psychologist, 1971, 26, 443-452.

Rotter, J. B. Generalized expectancies for problem solving and psychotherapy. Cognitive Therapy and Research, 1978, 2, 1-10.

Rotter, J. B. Social learning and clinical psychology. Englewood Cliffs, New Jersey: Prentice-Hall, 1954.

Rotter, J. B., Chance, J. E., & Phares, E. J. Applications of a social learning theory of personality. New York: Holt, Rhinehart & Winston, 1972.

Table 1

Test Data for Scales Administered

Scale	N	Mean	S.D.
Expectancy for Problem Solving Inventory (First Administration)	161	112.6646	13.7750
Expectancy for Problem Solving Inventory (Second Administration)	148	112.8446	15.7837
Problem Solving Inventory	143	125.1259	17.9259
Internal-External Locus of Control Scale	76	9.8816	4.3908
Interpersonal Trust Scale	69	80.1159	5.1863

Table 2

Pearson Product-Moment Correlation Coefficients

Variable Pairs	N	r	P
EPSI 1 with EPSI 2	138	0.576	0.001
EPSI 1 with PSI	135	0.4514	0.001
EPSI 1 with IES	68	0.0116	.463
EPSI 2 with IES	69	-0.0409	.369
EPSI 1 with ITS	66	0.0668	.297
EPSI 2 with ITS	68	.0004	.499
PSI with IES	66	-0.0661	.299
PSI with ITS	56	-0.0960	.241